CDX-705/EXCD-3

SERVICE MANUAL

Ver 1.1 2001.08

US Model
Canadian Model
CDX-705/EXCD-3
AEP Model
UK Model
E Model
CDX-705

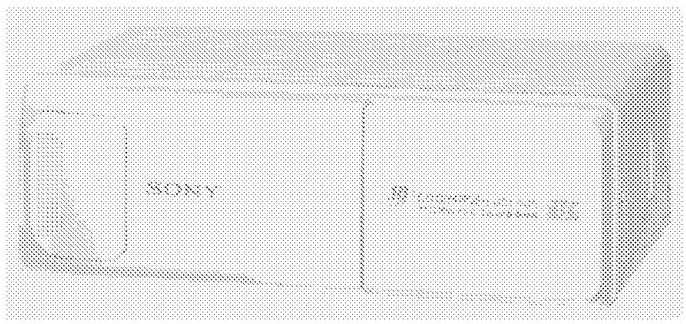

Photo: CDX-705

Model Name Using Similar Mechanism	NEW
CD Drive Mechanism Type	MG-250A-137
Optical Pick-up Name	KSS-521A/J2RP

SPECIFICATIONS

System	Compact disc digital audio system
Laser diode properties	
	Material: GaAlAs
	Wavelength: 780 nm
	Emission Duration: Continuous
	Laser out-put Power: Less than 44.6 μW*
	* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.
Frequency response	10-20,000 Hz
Wow and flutter	Below the measurable limit
Signal-to-noise ratio	94 dB
Outputs	BUS control output (8 PIN)
	Analog audio output (RCA PIN)
Current drain	800 mA (during CD playback)
	800 mA (during loading or ejecting a disc)
Operating temperature	
	–10 °C to +55 °C
Dimensions	Approx. 262 × 90 × 181.5 mm
	(10 3/8 × 3 5/8 × 7 1/4 in.) (w/h/d)
	not incl. projecting parts and controls
Mass	Approx. 2.1 kg (4 lb. 10 oz.)
Power requirement	12 VDC car battery
	(negative ground)
Supplied accessories	Disc magazine (1)
	Parts for installation and connections (1 set)

Design and specifications subject to change without notice.

COMPACT DISC CHANGER

9-925-527-12
2001H0500-1
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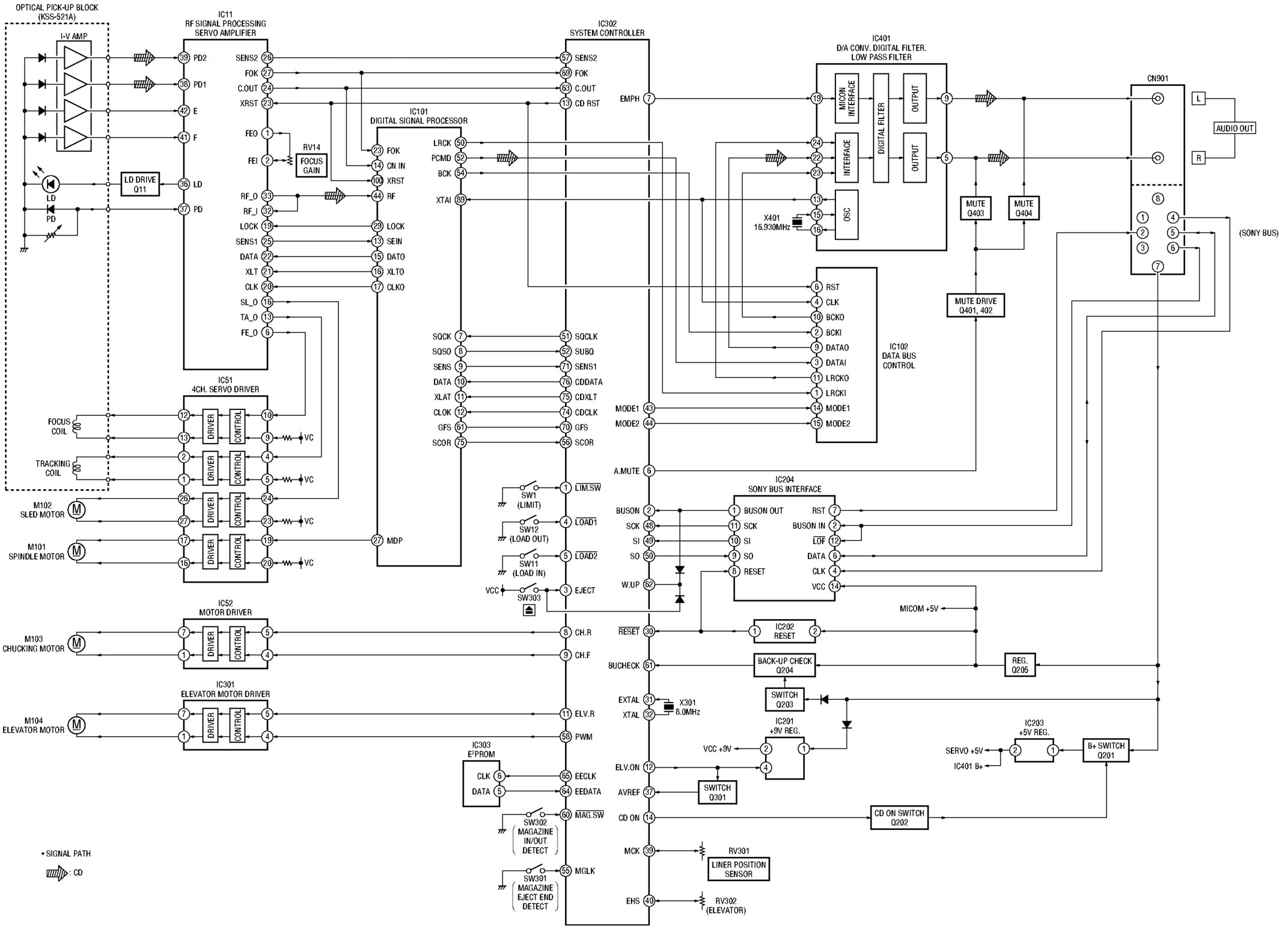
Sony Corporation
e Vehicle Company
Shinagawa Tec Service Manual Production Group

SONY®

SECTION 4
DIAGRAMS

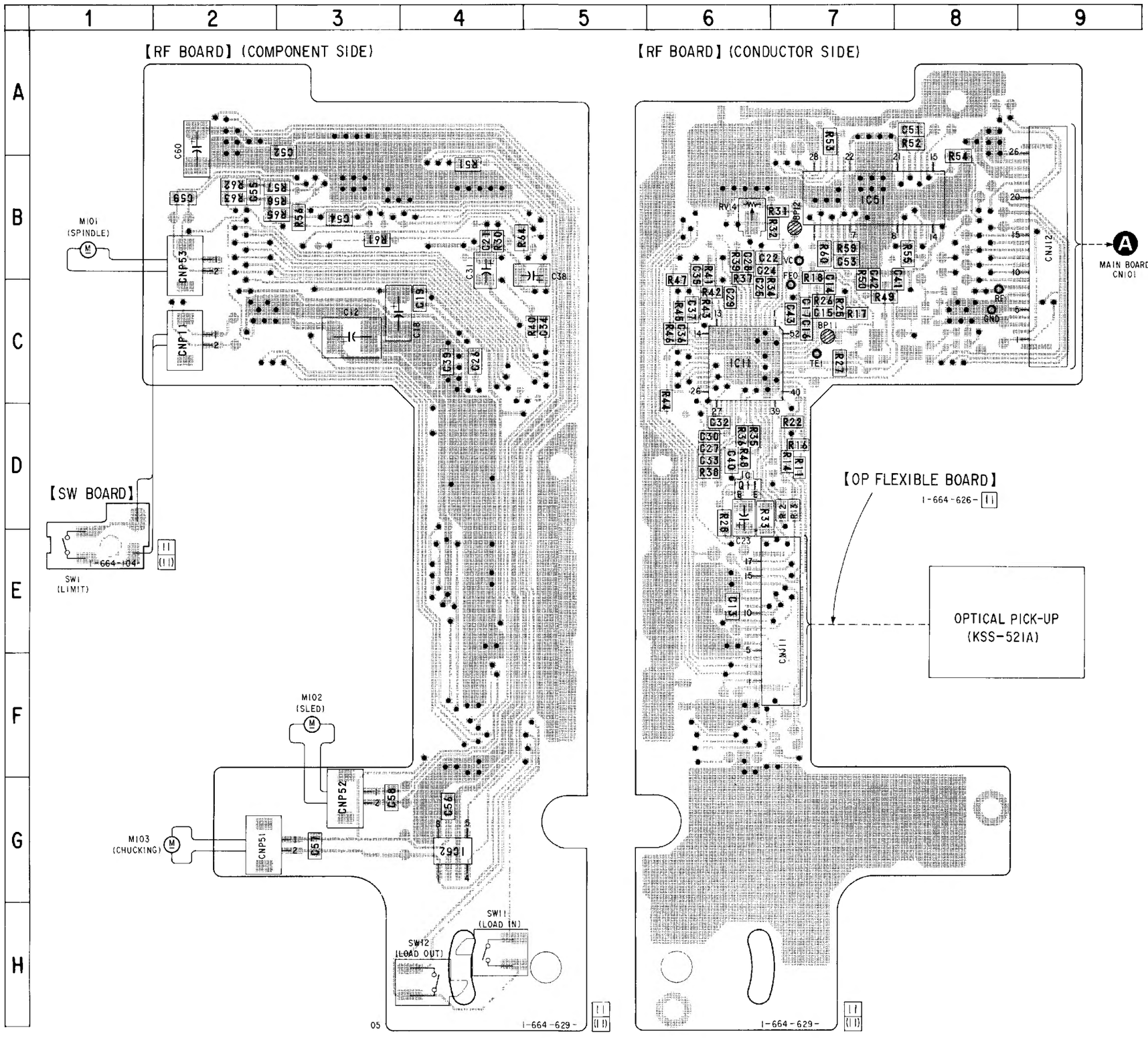
4-1. BLOCK DIAGRAM



4-2. PRINTED WIRING BOARD – RF Section –

• **Semiconductor Location**

Ref. No.	Location
IC11	C-6
IC51	B-7
IC52	G-4
Q11	D-6



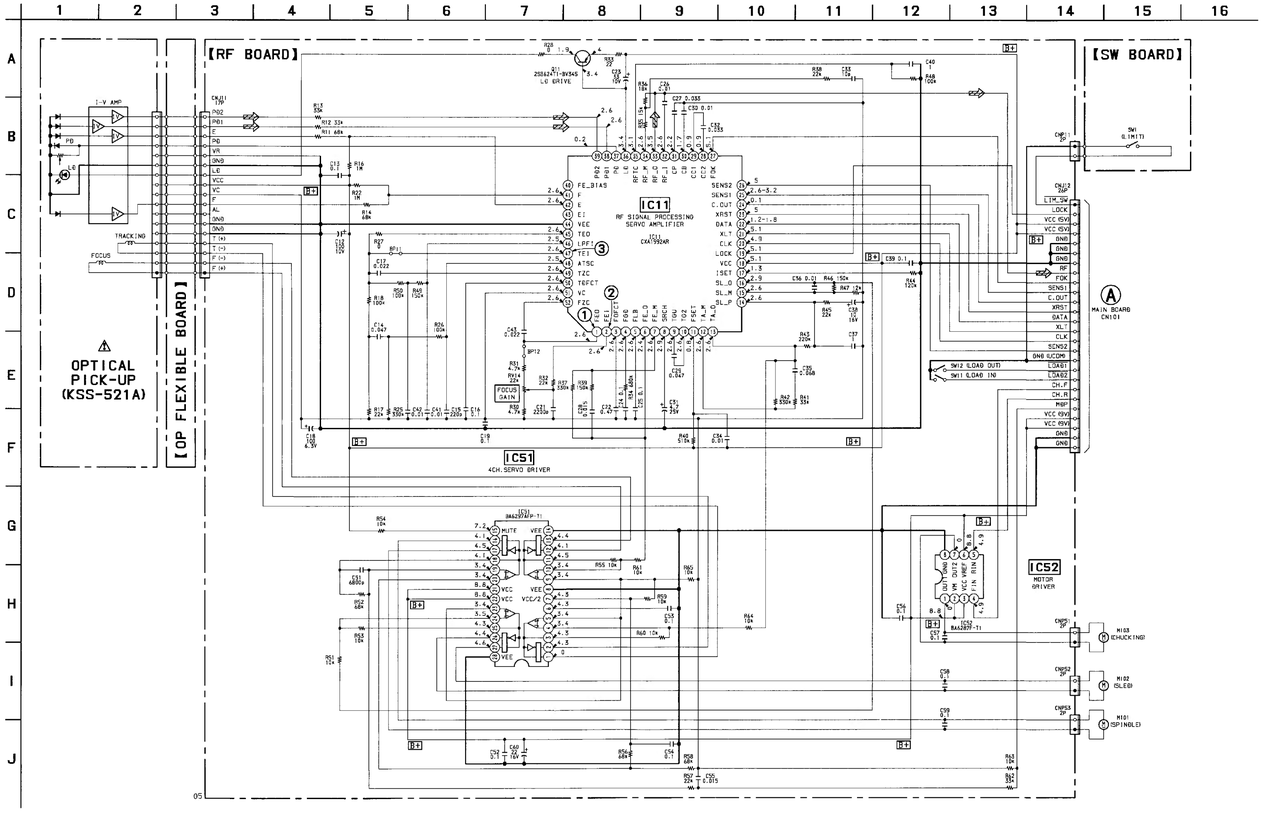
Note on Printed Wiring Board:

- ——— : parts extracted from the conductor side.
- ● : Through hole.
- ▒▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

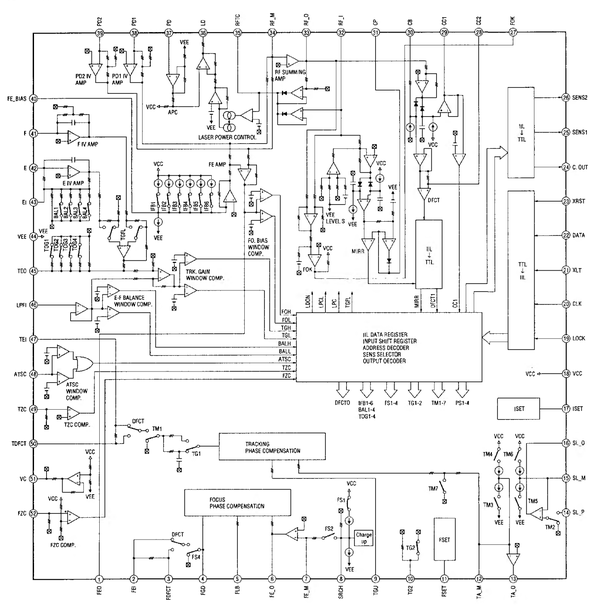
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

4-3. SCHEMATIC DIAGRAM – RF Section –

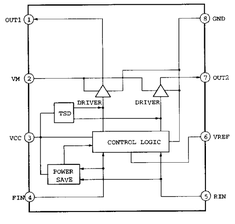


• IC Block Diagrams

IC11 CXA1992AR



IC52 BA6287F



Note on Schematic Diagram:

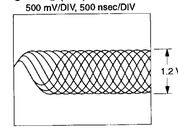
- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

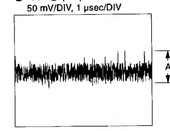
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4 V and fed from CD changer controller.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

• Waveforms

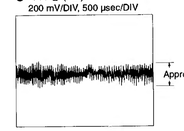
❶ IC11 ① (FEO)
500 mV/DIV, 500 nsec/DIV



❷ IC11 ② (FEI)
50 mV/DIV, 1 µsec/DIV



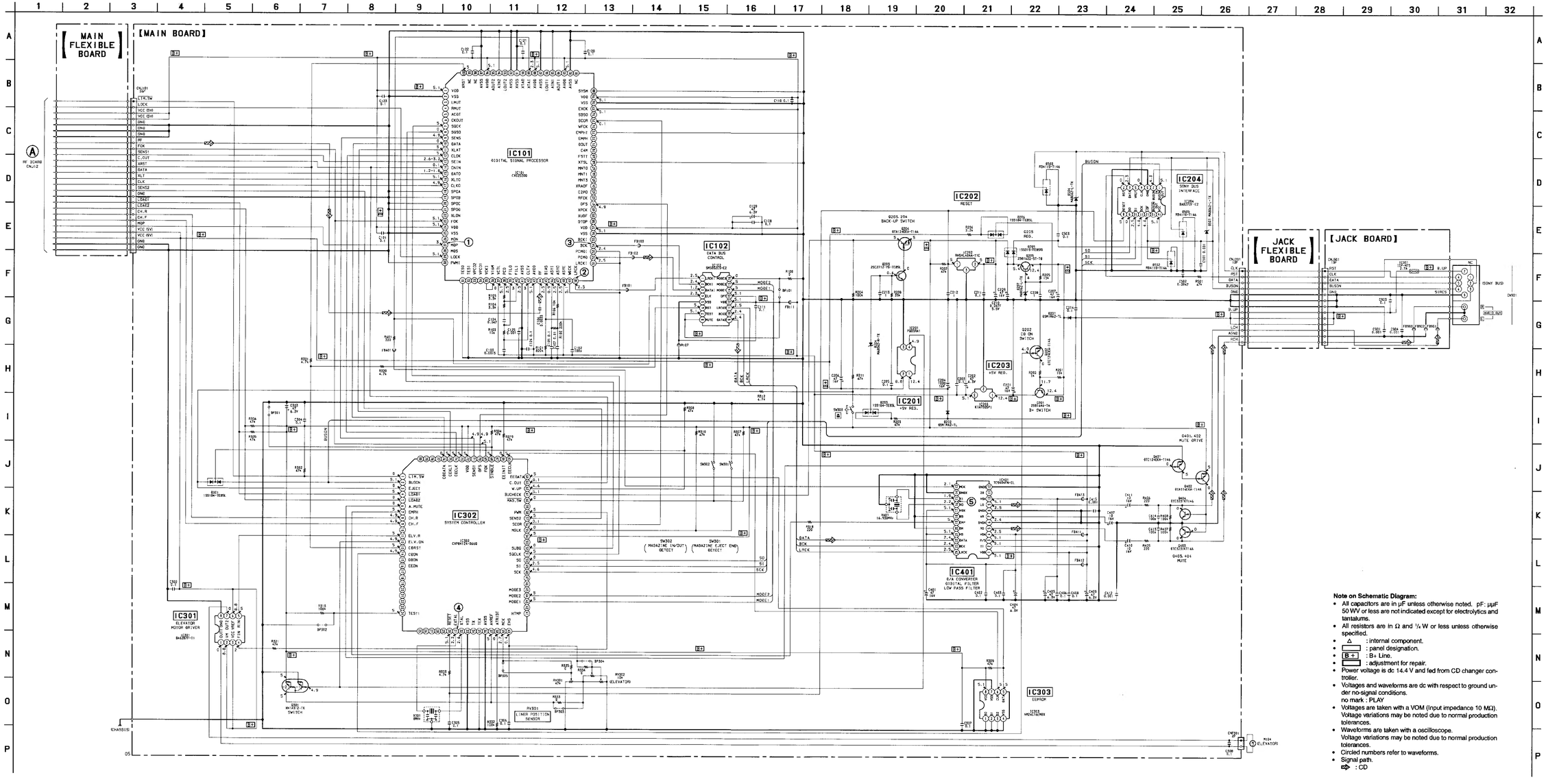
❸ IC11 ④ (TEI)
200 mV/DIV, 500 µsec/DIV



4-4. SCHEMATIC DIAGRAM – MAIN Section –

• See page 31 for IC Block Diagrams.

SEE ADDITIONAL INFORMATION

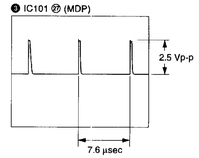


Note on Schematic Diagram:

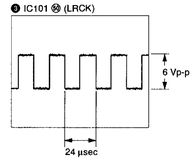
- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4 V and fed from CD changer controller.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

• Waveforms

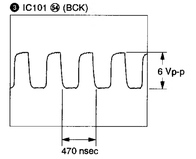
❶ IC101 ㉗ (MDP)



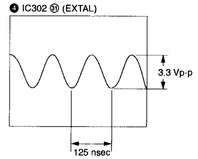
❷ IC101 ㉘ (LRCK)



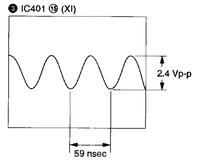
❸ IC101 ㉙ (BCK)



❹ IC302 ㉚ (EXTAL)



❺ IC401 ⑯ (XI)



4-5. PRINTED WIRING BOARD – MAIN Section –

• Semiconductor Location

Ref. No.	Location
D201	D-10
D202	D-10
D203	F-11
D204	F-11
D205	F-10
D206	F-10
D207	F-9
D301	H-13
D501	H-12
D502	G-12
D503	G-12
D504	G-12
D505	H-12
IC101	D-15
IC102	C-13
IC201	F-25
IC202	I-13
IC203	E-25
IC204	G-12
IC301	G-11
IC302	H-14
IC303	I-12
IC401	D-13
Q201	E-25
Q202	C-10
Q203	F-11
Q204	H-12
Q205	F-10
Q301	G-15
Q401	E-12
Q402	E-12
Q403	D-11
Q404	D-11

Note on Printed Wiring Board:

- ○——: parts extracted from the component side.
- ——: parts extracted from the conductor side.
- ●: Through hole.
- △: internal component.
- : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

4-6. IC PIN FUNCTION DESCRIPTION

MAIN BOARD IC302 CXP84124-066Q (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Function
1	$\overline{\text{LIM.SW}}$	I	Input of limit switch
2	BUSON	I	Input of Bus on control signal from SONY bus interface (IC204) "H": Bus on
3	EJECT	I	Input of EJECT key (SW303) "H": Eject on
4	$\overline{\text{LOAD 1}}$	I	Input of LOAD OUT switch
5	$\overline{\text{LOAD 2}}$	I	Input of LOAD IN switch
6	A.MUTE	O	Output of audio output mute on/off control signal "H": Mute on
7	EMPH	O	Output of emphasis mode for disc playing "L": on
8	CH.R	O	Output of control signal to the chucking motor drive (IC52)
9	CH.F	O	

	FWD	REV	Brake
CH.R	L	H	H
CH.F	H	L	H

Forward : Load chucking
Reverse : Save

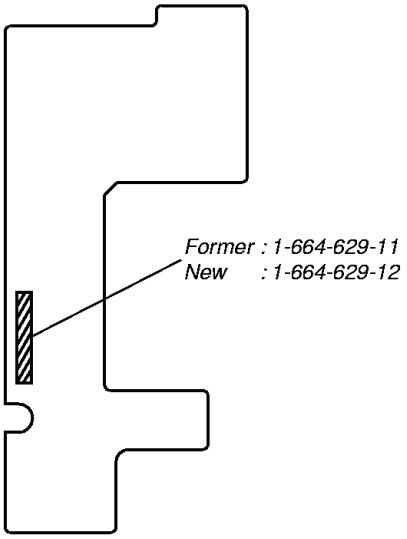
Pin No.	Pin Name	I/O	Function
10	—	—	Not used
11	ELV.R	O	Output of control signal to elevator motor drive (IC301)
12	ELV.ON	O	Output of mechanical deck power supply control signal "H": on
13	CD RST	O	Servo system resetting
14	CD ON	O	Output of servo power supply control signal "H": on
15	GBON	—	Not used
16	EEON	—	Not used
17-23	—	—	Not used
24	TEST1	I	Automatic adjustment selection "L": Automatic adjustment "H": Manual adjustment (Solder across the BP302 terminal)
25-29	—	—	Not used
30	$\overline{\text{RESET}}$	I	Input of system reset signal "L": Reset
31	EXTAL	I	Input of system clock (8 MHz)
32	XTAL	O	Output of system clock (8 MHz)
33	VSS	—	Ground pin
34	TX	—	Not used
35	TEX	I	Connected to ground
36	AVSS	—	Ground pin of A/D converter
37	AVREF	I	Input of A/D converter reference voltage
38	ATRIBT	I	Selection of custom file, D-BASS, etc.
39	MCK	I	Input of signal for fine adjustment of elevator position
40	EHS	I	Input of elevator position (RV302)
41	HTMP	—	Not used
42	—	—	Not used
43	MODE1	O	Output of D-BASS control signal
44	MODE2	O	Output of D-BASS control signal
45	MODE3	O	Output of D-BASS control signal Not used
46, 47	—	—	Not used
48	SCK	O	Output of serial clock signal from SONY bus interface (IC204)
49	SI	I	Input of serial data signal from SONY bus interface (IC204)
50	SO	O	Output of serial data signal to SONY bus interface (IC204)

Pin No.	Pin Name	I/O	Function
51	SQCLK	O	Output of clock signal to CXD2530Q (IC101)
52	SUBQ	I	Input of subcode Q data signal from CXD2530Q (IC101)
53	—	—	Not used
54	—	—	Connected to the power supply
55	MGLK	I	Input of magazine eject completion detect switch (SW301) "L": Eject completed
56	SCOR	I	Input of subcode sync detect signal from CXD2530Q (IC101)
57	SENS2	I	Input of sense signal from CXA1992AR (IC11)
58	PWM	O	Output of PWM for control to elevator motor drive (IC301)
59	—	—	Not used
60	$\overline{\text{MAG.SW}}$	I	Input of magazine detection switch (SW302) "L": Magazine detected
61	BUCHECK	I	Input of backup detection detection "H": Backup on
62	W.UP	I	Input of Bus on or EJECT key
63	C.OUT	I	Input of track counting signal
64	EEDATA	I/O	Input/output of data signal to E^2PROM (IC303)
65	EECLK	O	Output of clock signal to E^2PROM (IC303)
66	EEINIT	I	Input of initialize signal from E^2PROM (IC303) fixed at "L"
67	—	—	Not used
68	$\overline{\text{SINGLE}}$	I	Selection of single mode "L": Single CD playing
69	FOK	I	Input of focus OK signal from CXA1992AR (IC11) and CXD2530Q (IC101)
70	GFS	I	Input of guard frame sync signal from CXD2530Q (IC101)
71	SENS1	I	Input of sense signal from CXD2530Q (IC101)
72	VDD	—	Power supply
73	—	—	Connected to the power supply
74	CD CLK	O	Output of serial data transfer clock signal to CXD2530Q (IC101)
75	CD XLT	O	Output of latch signal to CXD2530Q (IC101)
76	CD DATA	O	Output of serial data signal to CXD2530Q (IC101)
77-80	—	—	Not used

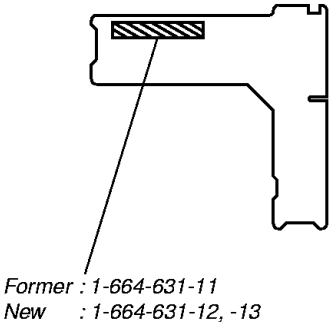
3. BOARD MODIFICATION

3-1. NEW/FORMER DISCRIMINATION

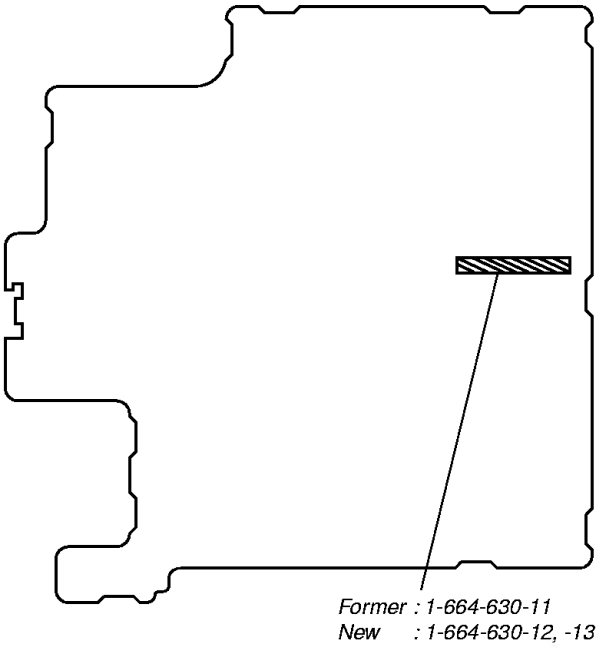
[RF BOARD] – Conductor Side –



[JACK BOARD] – Conductor Side –



[MAIN BOARD] – Component Side –



3-2. PRINTED WIRING BOARDS – MAIN Section –

• Semiconductor Location

Ref. No.	Location
D201	D-10
D202	D-10
D203	F-11
D204	F-11
D205	F-10
D206	F-10
D207	F-9
D301	H-13
D311	G-11
D501	H-12
D502	G-12
D503	G-12
D504	G-12
D505	H-12
IC101	D-15
IC102	C-13
IC201	F-25
IC202	I-13
IC203	E-25
IC204	G-12
IC301	G-11
IC302	H-14
IC303	I-12
IC401	D-13
Q201	E-25
Q202	C-10
Q203	F-11
Q204	H-12
Q205	F-10
Q301	G-15
Q401	E-12
Q402	E-12
Q403	D-11
Q404	D-11

Note on Printed Wiring Board:

- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- △ : internal component.
- : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Conductor Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side) Parts on the parts face side seen from the parts face are indicated.

- Abbreviation
  CND : Canadian
  G : German
  TW : Taiwan

【JACK BOARD】 (COMPONENT SIDE)

【JACK BOARD】 (CONDUCTOR SIDE)

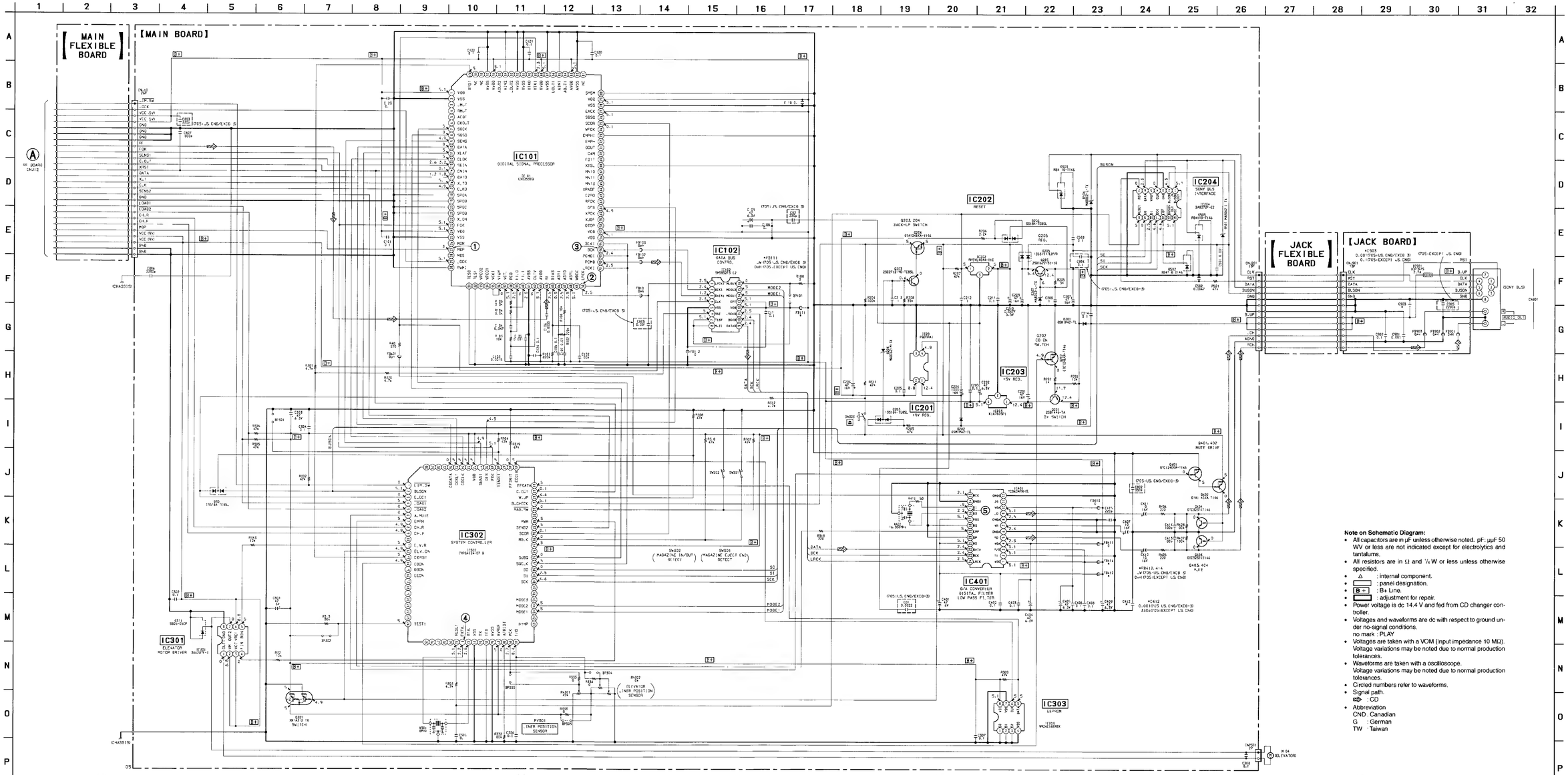
【JACK FLEXIBLE BOARD】

【MAIN BOARD】 (COMPONENT SIDE)

【MAIN FLEXIBLE BOARD】

【MAIN BOARD】 (CONDUCTOR SIDE)

3-3. SCHEMATIC DIAGRAM – MAIN Section –



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : Internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4 V and fed from CD changer controller.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
- Abbreviation
  CND : Canadian
  G : German
  TW : Taiwan

3-4. PRINTED WIRING BOARDS – RF Section –

• **Semiconductor Location**

Ref. No.	Location
IC11	C-6
IC51	B-7
IC52	G-4
Q11	D-6

Note on Printed Wiring Board:
- ——— : parts extracted from the conductor side.
- ● : Through hole.
- △ : Internal component.
- : Pattern from the side which enables seeing.

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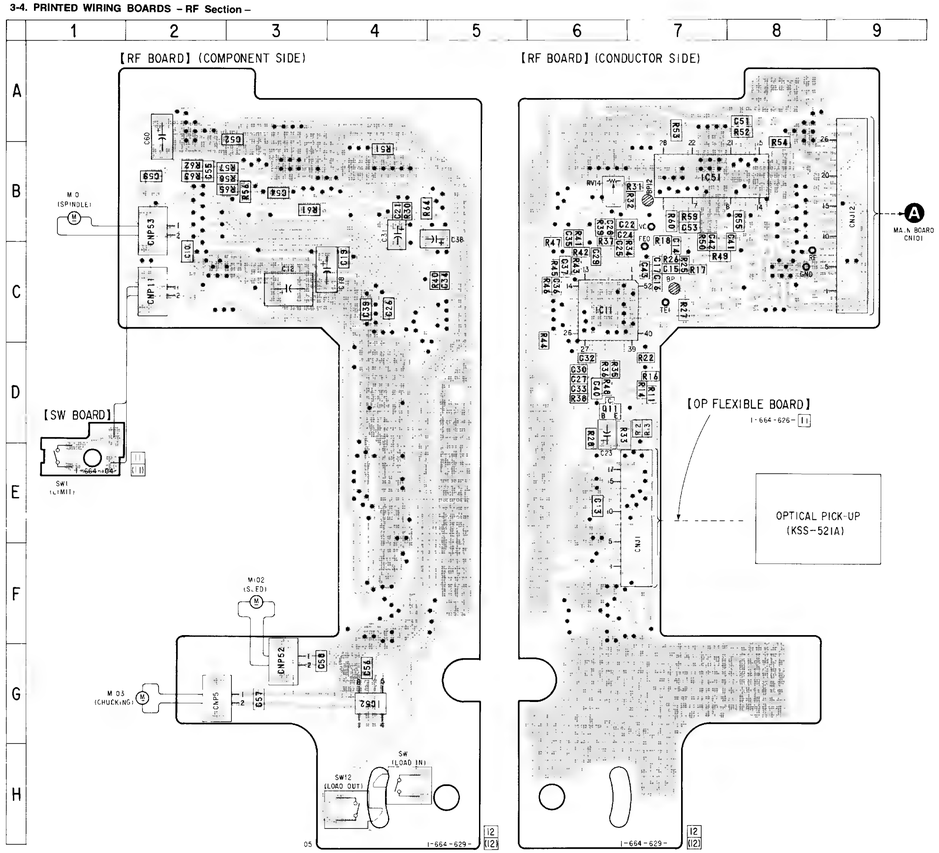
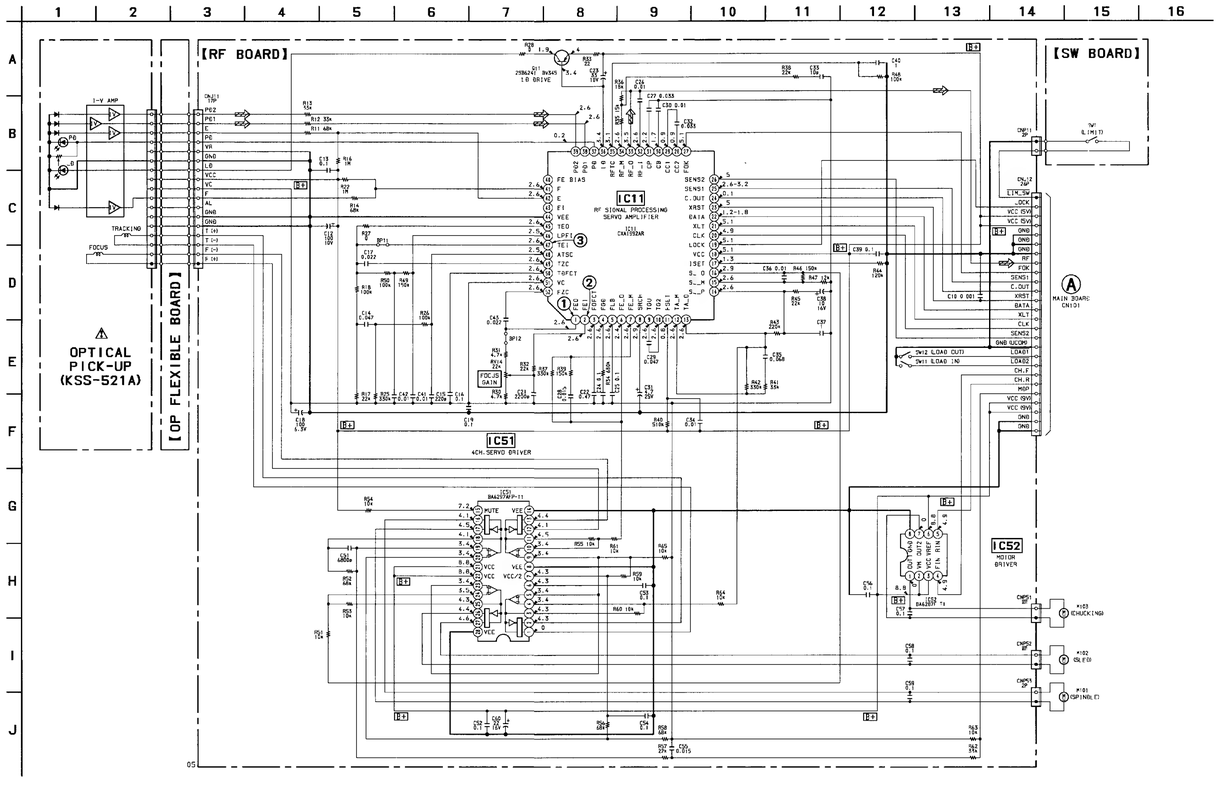
- B+ : B+ Line.
- : adjustment for repair.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from CD changer controller.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD



3-5. SCHEMATIC DIAGRAM – RF Section –



CDX-705/EXCD-3

SONY

SERVICE MANUAL

US Model
Canadian Model
CDX-705/EXCD-3
AEP Model
UK Model
E Model
CDX-705

SUPPLEMENT-4

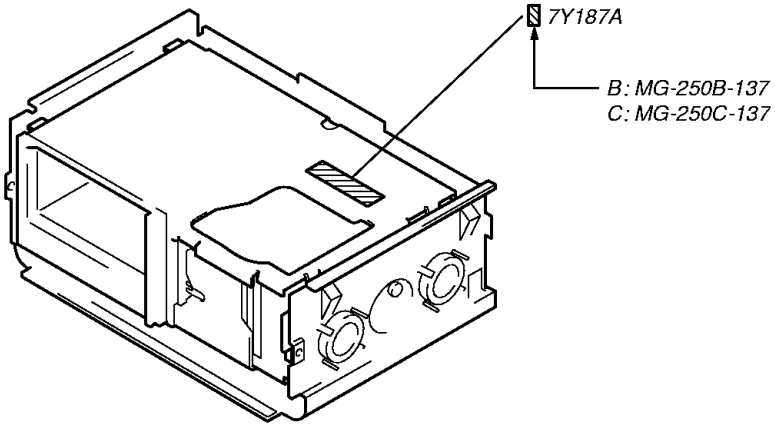
File this supplement with the service manual.

Subject: Mechanism Deck Modification (MG-250C-137)

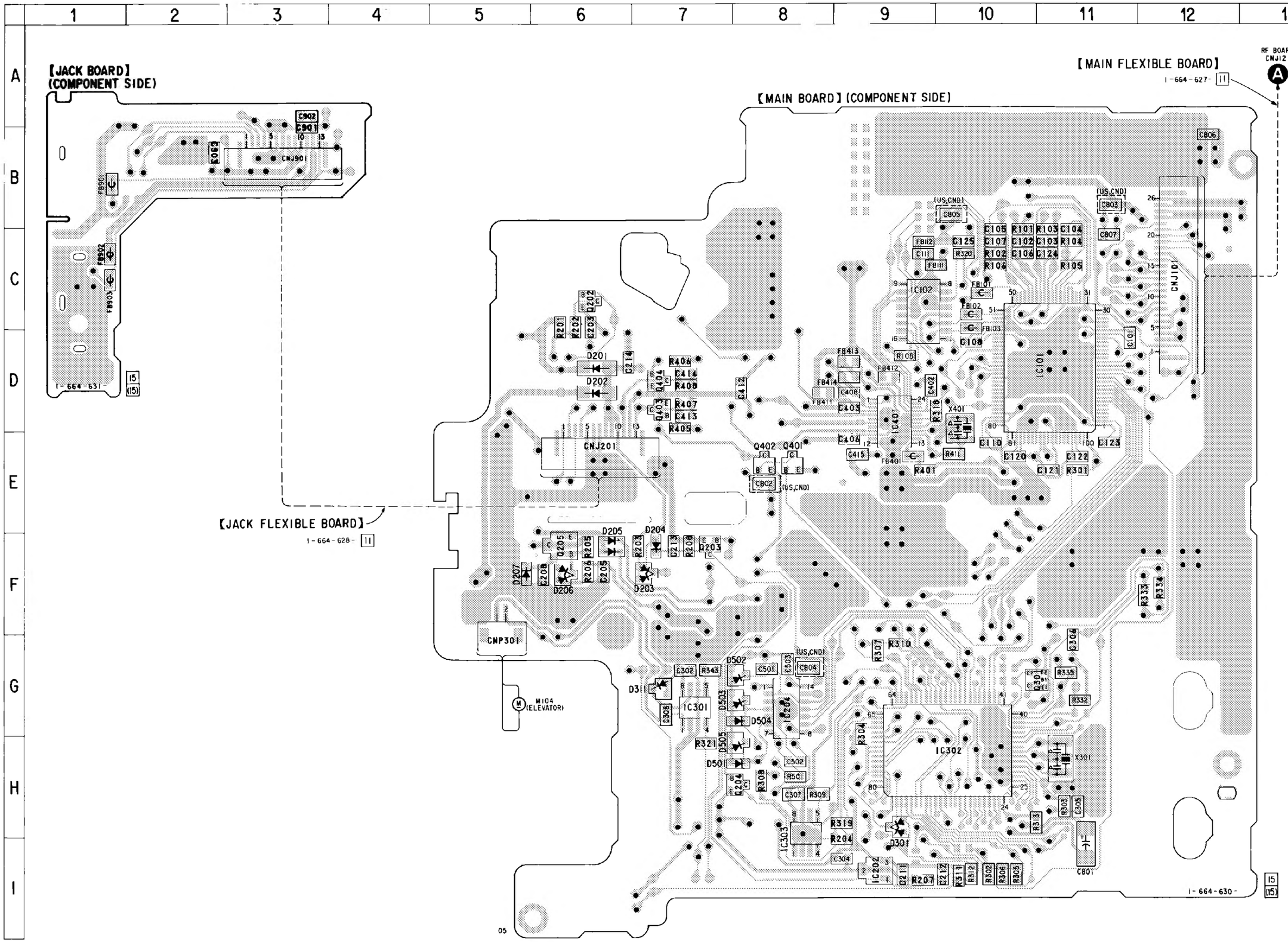
(ENG-98014)

The mechanism deck was changed from MG-250B-137 to MG-250C-137.
At the same time, main and jack boards were been changed.
This supplement contains only a new type mechanism deck.

1. NEW/FORMER DISCRIMINATION



2-2. PRINTED WIRING BOARDS – MAIN/JACK BOARD (Component side) –

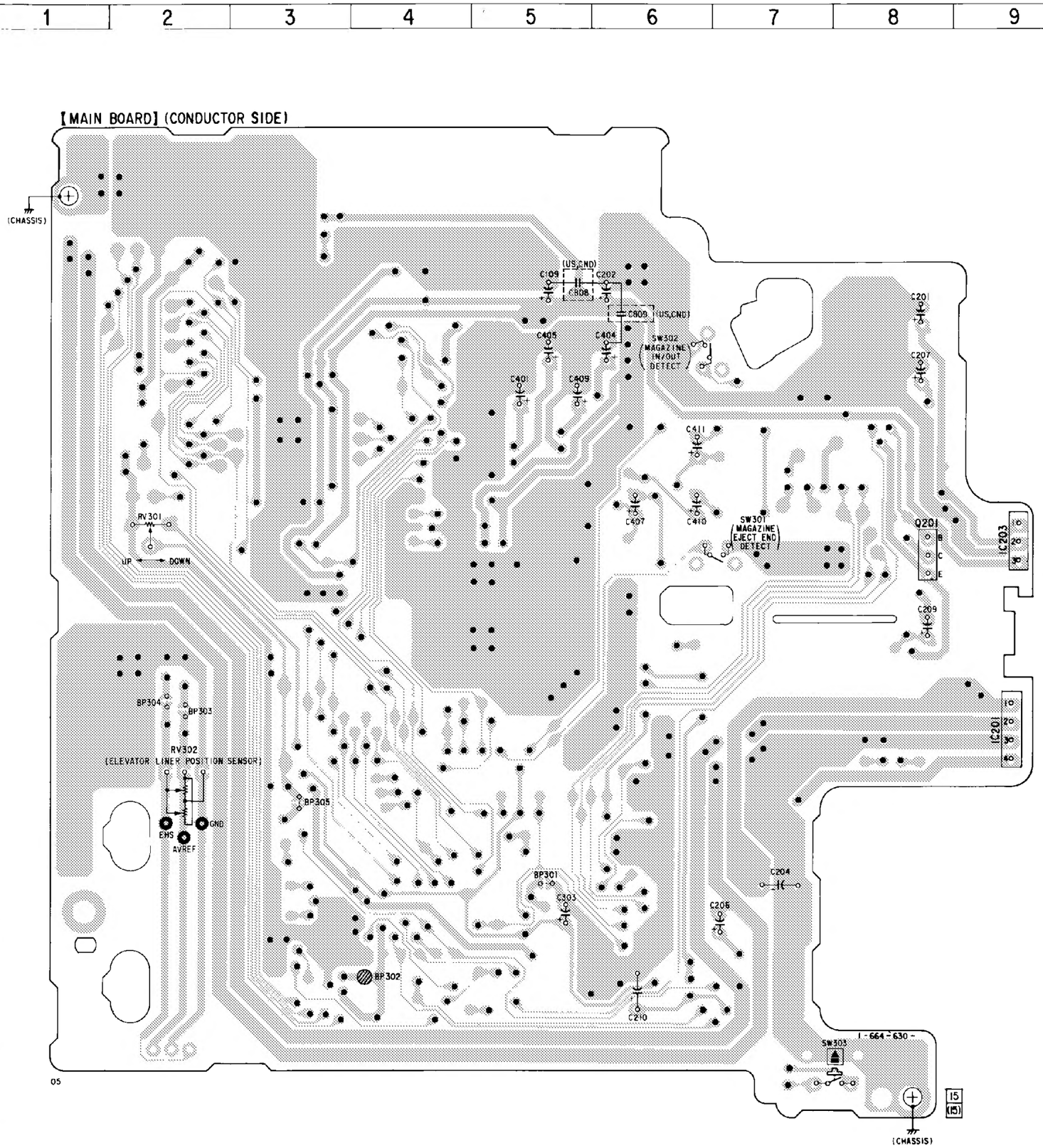


- **Semiconductor Location**

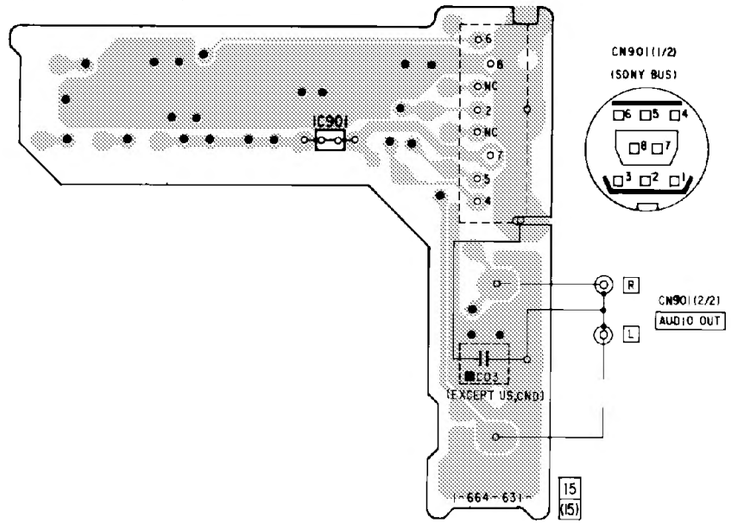
Ref. No.	Location
D201	D-6
D202	D-6
D203	F-7
D204	F-7
D205	F-6
D206	F-6
D207	F-5
D301	H-9
D311	G-7
D501	H-8
D502	G-8
D503	G-8
D504	G-8
D505	H-8
IC101	D-11
IC102	C-9
IC202	I-9
IC204	G-8
IC301	G-7
IC302	H-10
IC303	H-8
IC401	D-9
Q202	C-6
Q203	F-7
Q204	H-8
Q205	F-6
Q301	G-11
Q401	E-8
Q402	E-8
Q403	D-7
Q404	D-7

2-3. PRINTED WIRING BOARDS – MAIN/JACK BOARD (Conductor side) –

【MAIN BOARD】(CONDUCTOR SIDE)



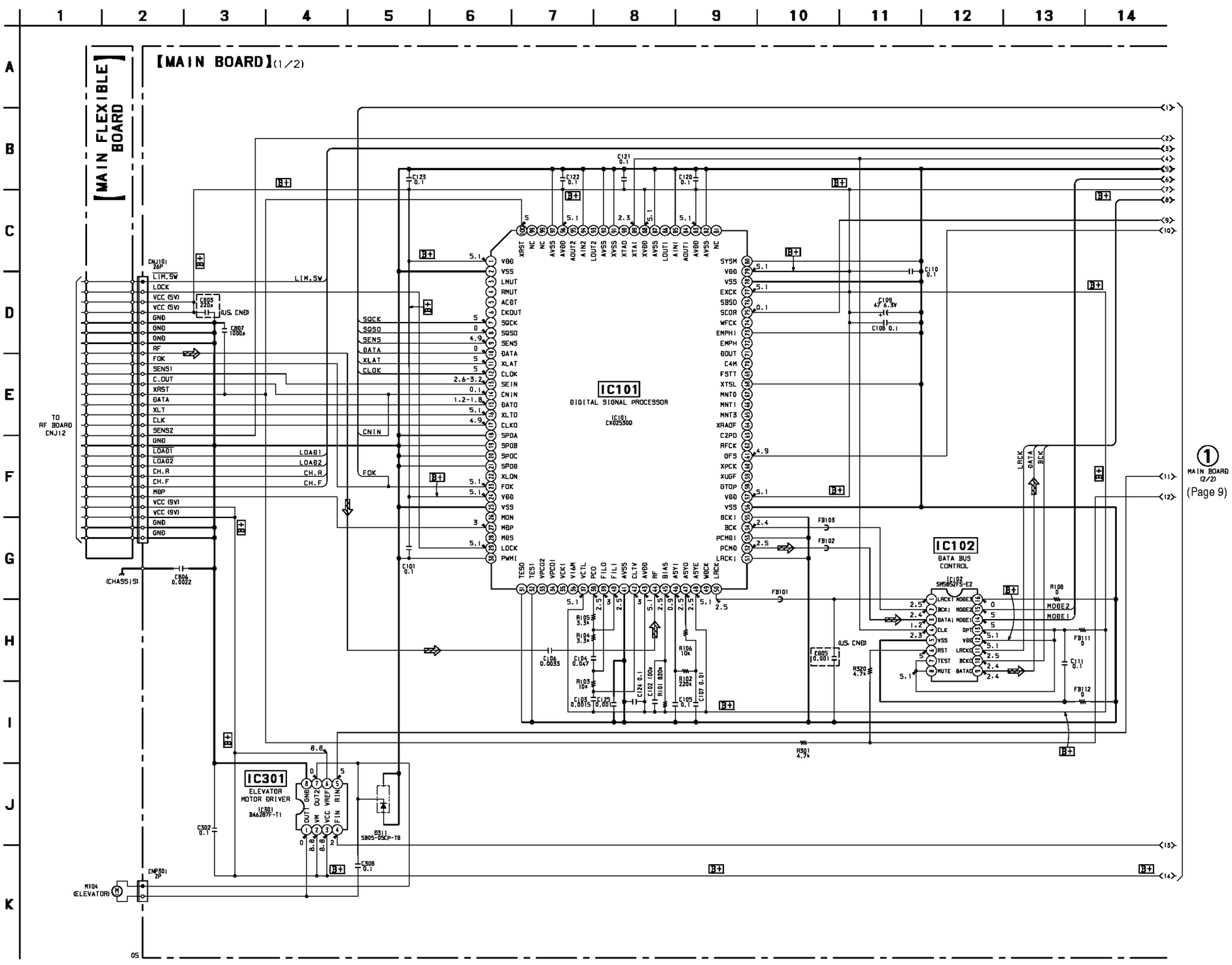
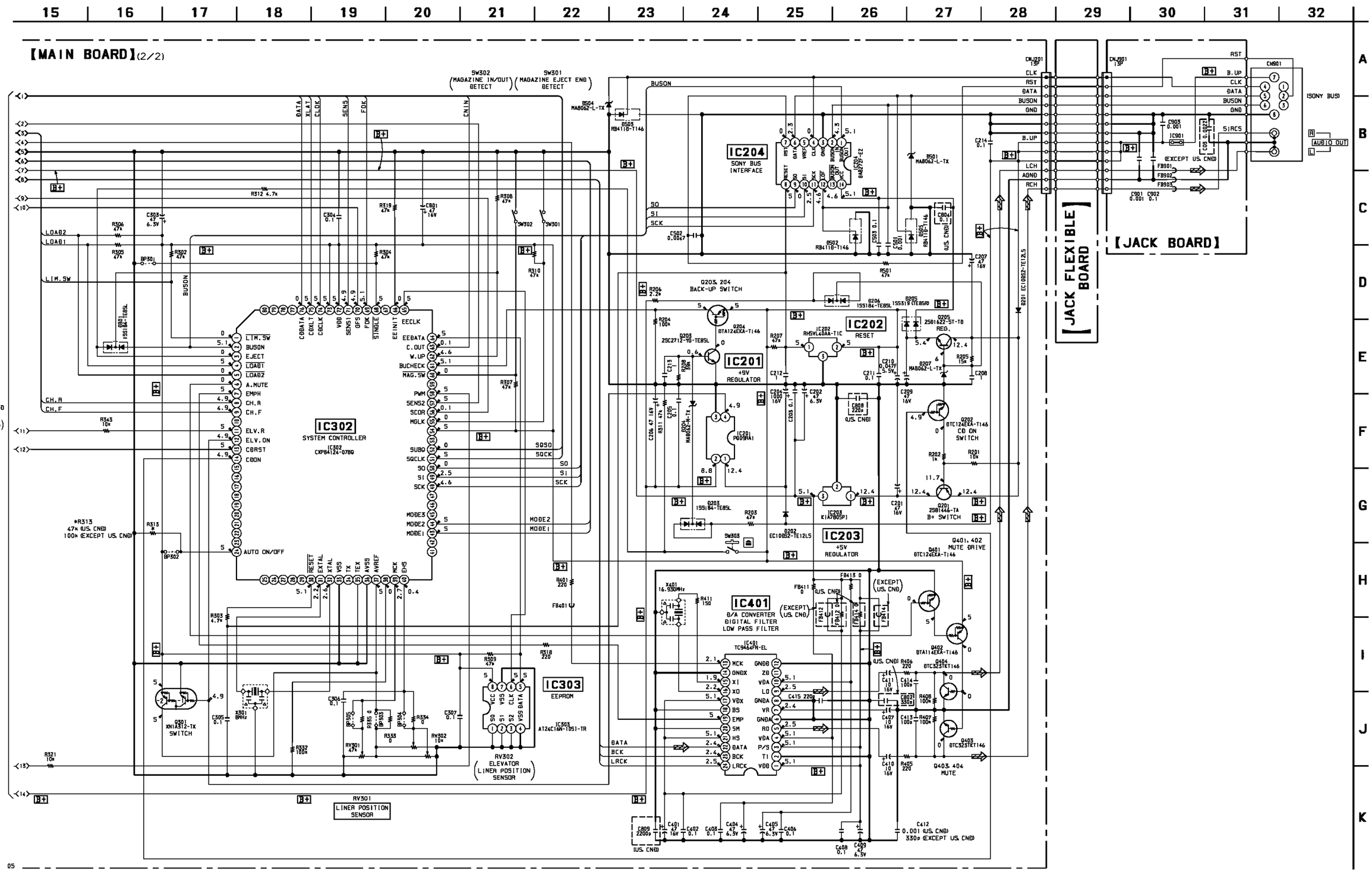
【JACK BOARD】
(CONDUCTOR SIDE)



- **Semiconductor Location**

Ref. No.	Location
IC201	F-9
IC203	E-9
Q201	E-8

2-4. SCHEMATIC DIAGRAM – MAIN Section (1/2) –



2-5. SCHEMATIC DIAGRAM – MAIN Section (2/2) –